Tutorial introducing the R package simplasex

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Introduction

The R package simplasex provides functions to simulate realistic sexual networks. If you have not already done so, you can install simplasex using the following R command:

```r
devtools::install_github('lwhittles/simplasex')
```

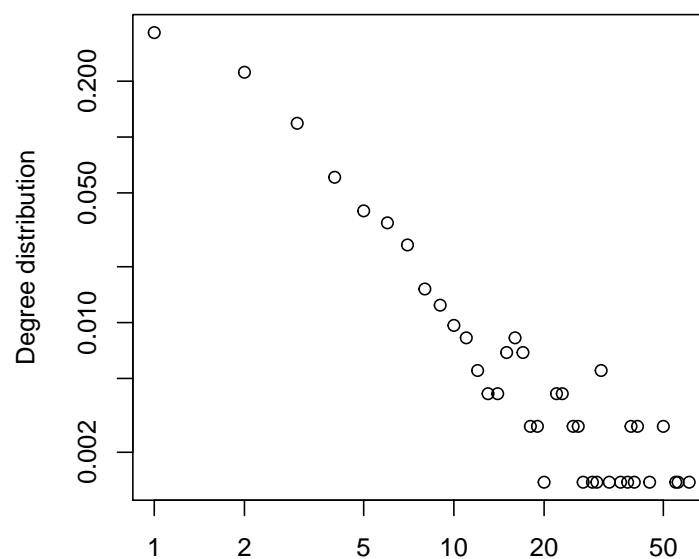You should then be able to load simplasex using:

```r
library('simplasex')
```

Finally, if you want to reproduce exactly the same results as the ones shown in this tutorial, you should set the seed of your random number generator to the same as ours:
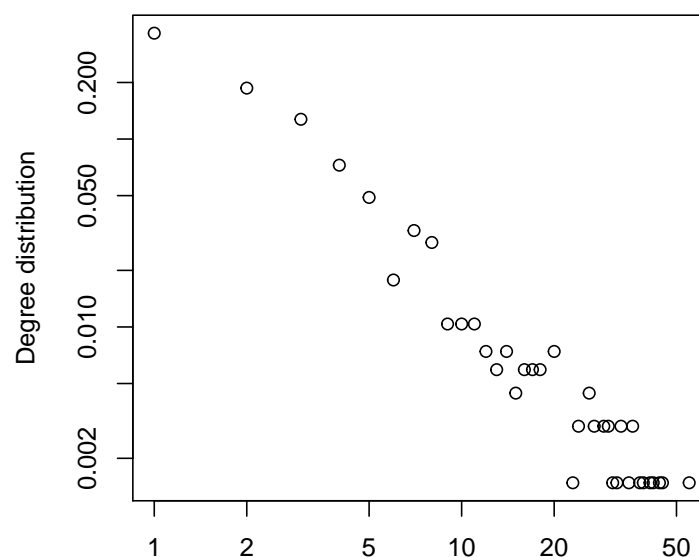
```r
set.seed(0)
```

Static network simulation

```r
s <- sim_static_sn(N = 1000, gamma = 1.8)
suppressWarnings(plot(s$dd,xlab = '',
    ylab = 'Degree distribution',log = 'xy'))
```

Simulation of outbreak in static network

```r
s <- sim_outbreak_static_sn(N=1000, gamma = 1.8)
suppressWarnings(plot(s$dd,xlab = '',
    ylab = 'Degree distribution',log = 'xy'))
```
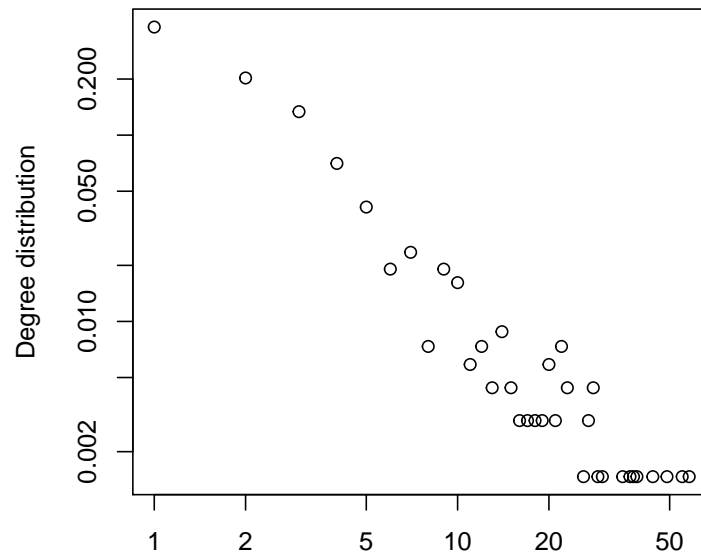


```r
nrow(s$log_infs)
```
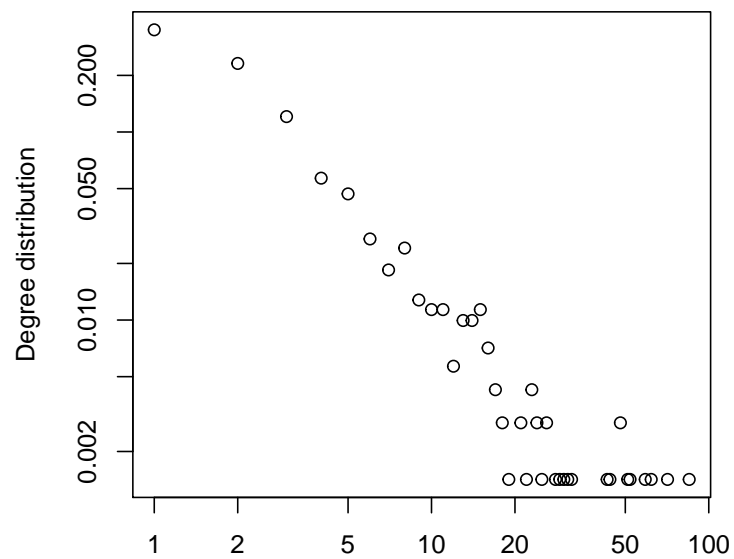
```
## [1] 675
```

Dynamic network simulation

```r
s <- sim_dynamic_sn(N = 1000, gamma = 1.8)
suppressWarnings(plot(s$dd,xlab = '',
    ylab = 'Degree distribution',log = 'xy'))
```

Simulation of outbreak in dynamic network

```r
s <- sim_dynamic_sn(N = 1000, gamma = 1.8, n_infs = 1,beta=1000)
suppressWarnings(plot(s$dd,xlab = '',
    ylab = 'Degree distribution',log = 'xy'))
```

```
nrow(s$log_infs)
```

```
## [1] 444
```